Creating Interoperability Between Different Government “Ecosystems”

«An innovative approach using Blockchain»

Pietro Marchionni

Washington, 02° May 2018
Learning from this event

The starting point of defining blockchain utilization for government services looks different from here to EU.

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**RESEARCH & INNOVATION**

Participant Portal

**EU Programmes 2014-2020**

- Search Topics
- Updates
- Calls

**H2020**

- 3rd Health Programme
- Asylum, Migration and Integration Fund
- Consumer Programme
- COSME

**TOPIC**: Transformative impact of disruptive technologies in public services

- **Topic Identifier**: DT-TRANSFORMATIONS-02-2018-2019-2020
- **Publication date**: 27 October 2017
- **Focus area**: Digitising and transforming European industry and services (DT)

**Types of action**

- **DeadlineModel**: RIA Research and Innovation action
- **Planned opening date**: single-stage 06 November 2018
  - **Deadline**: 14 March 2019 17:00:00

- **Types of action**
  - **DeadlineModel**: RIA Research and Innovation action
  - **Planned opening date**: single-stage 07 November 2017
  - **Deadline**: 13 March 2018 17:00:00

**Time Zone**: (Brussels time)

**9 Million Euro budgeted**
Agenda

1. Government Interoperability
2. Blockchain and European Union
3. Blockchain standardization process
Today’s government interoperability model

Government Model Example*

Interoperability approach

Service Provisioning Layer

Service Consumption Layer
Even from spending point of view we can understand that government structures are inherently decentralized.
A different approach

We transform the current Service Bus architecture into a *distributed, smart, secure* service provisioning approach based on a new Consensus Model (D-PoA) within a private & permissioned blockchain protocol: the **Government Service Blockchain**
The driving concept of the Government Service Blockchain (GSB) is to:

enhance efficiency, security, transparency and engagement, while allowing each government entity to run its own processes with its own technology stack, regardless of the processes and technologies of any other entity.

Drivers

- Efficiency
- Accountability
- Transparency
- Engagement
- Data Protection
- Data Sovereignty
- Security
- Privacy

Improved Citizen Services
The transformation process involves the main elements constituting the public services provisioning system and is aimed to change the way the service itself is provisioned and consumed.

In this concept the blockchain infrastructure will act as:

“asynchronous communication bus”

where the concept of service provisioning & consumption is completely transformed.
Global consensus in service provisioning is rarely a government requirement and therefore the classic approach of Proof Of Work, Proof Of Stake, and others will not fit the Government Service Blockchain governance model.

A new consensus mechanism is then required to allow any blockchain to work properly in Public Administration services.
Distributed Proof of Authority (D-PoA) allows to have authoritative areas where one or more administrations are responsible for the approval (consensus) on performed transactions, here the Authority is not anymore applied overall but, as the chain itself, its distributed and flexibly adapted to the various authoritative areas constituting the government ecosystem.
GSB Characteristics/Advantages

1. fits more the modern government structure
2. reduces requirement from infrastructure side
3. Increases service provisioning security
4. enforces one ‘common language’ for all cases where two or more entities/nodes have to interact
5. all entities involved in any process represented by a smart contract will perform only their part of the task: the one they know better!
Challenges/Common Mistakes

- Blockchain at the same time is a nascent and rapidly changing technology, standardization is still far from first output

- Wide coordination is needed to run an appropriate governance model

  ✦ Choosing the wrong consensus approach or not implementing properly the D-PoA

  ✦ Implementing smart contracts workflows with the appropriate characteristics/features to make them enforceable
More details on…

White Paper
Next Generation Government Service Bus
The Blockchain Landscape

Agenda

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EU Actions on Blockchain

In May 2017 the Commission recognised blockchain-inspired technologies as having huge potential for EU administrations, businesses and the society in general.

WHAT IS THE EUROPEAN UNION DOING FOR BLOCKCHAIN?

**Financing** Horizon 2020 Research & Innovation projects. So far **€83 million** have been allocated by the EU in blockchain related projects, and potentially up to **€340 million** could be committed from **2018 to 2020**.

Actively **participating in international standardisation** like in:
- ISO Technical Committee 307 on blockchain and Distributed Ledger Technologies,
- ITU-T Focus Group on DLT Distributed Ledger Technologies.

**Testing blockchain solutions** (through proof of concept) and **piloting projects in support to EU policies** in areas like regulatory compliance, tax and customs, energy, identity management, ...
New technologies like blockchain will be an integral part of the European ICT strategy in order to answer to major societal challenges thanks to these principal characteristics:

- System and data interoperability (i.e. eHealth service interoperability by 2020)
- Trust and security in accord with ICT EU standards (ISO and ITU/T)
- Open source protocols and transparency
- Privacy and data protection compliant with GDPR

Rolling plan for ICT standard 2017

Societal challenges: eHealth, active and healthy ageing, accessibility of ICT products and services, e-skills and e-learning, emergency communication, eGovernment and eCall.
EU Actions in 2018 (1/2)

1. **EU Blockchain Observatory and Forum**
   
   • map key existing initiatives in Europe and beyond;
   
   • monitor developments analyse trends and address emerging issues

2. **FinTech action plan**

   • The plan will help the financial industry make use of the rapid advances in technology such as blockchain and other IT applications and strengthen cyber resilience.
3. **EU Blockchain infrastructure**

   • A study to assess, if, when and how blockchain technologies may help public authorities to deliver European services and implement policies in an optimized way

4. **EU Blockchain Partnership Initiative**

   • The Partnership will be a vehicle for cooperation amongst Member States to exchange experience and expertise in technical and regulatory fields and prepare for the launch of EU-wide blockchain applications across the Digital Single Market for the benefit of the public and private sectors
1. Healthcare: **KONFIDO**
   - H2020 project that aims to create a scalable and holistic paradigm for secure inner- and cross-border exchange, storage and overall handling of healthcare data

2. Smart Homes: **GHOST2020**
   - adoption of the data integrity offered by the Blockchain technology in the field of IoT devices, smart-homes and smart-cities

3. Secure Cloud Federation: **SUNFISH**
   - Sunfish has developed and integrated software enabling secure cloud federation as required by the Public Sector.
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1. Standardization Timeline & Challenges
   - Standardization in process but timeline is not for usable results in 2018;
   - DLTs are new and continuously evolving products, standardization will be a challenge

2. Main standardization bodies active as for today
   - ISO TC 307, ITU FG DLT, IEEE blockchain initiative, ETSI DLT, CEN/CENELEC FG DLT
   - Other entities working on product definition, use cases: UN, W3C, IETF...
Standardization Structure/Areas (ISO)

1. Terminology and concepts
2. Privacy and personally identifiable information (PII) protection
3. Identity, Security risks and vulnerabilities
4. Reference architecture
5. Taxonomy and Ontology
6. Legally binding smart contracts
7. Use Cases
CEN and CENELEC created a new Focus Group on Blockchain and Distributed Ledger Technologies (FG-Blockchain-DLT), with the objectives to support the standardization work carried on in ISO/TC 307, to identify potential European needs for Blockchain and DLT standardization (e.g. for the European implementation of ISO/TC 307 standards),
European union Standardization will support other bodies strengthening the following areas

1. Financial & Tax compliance and cross border economic data exchange
2. Business cases coming from research projects
3. Sustainable Development Strategies
4. Digital Identity and Signature Management
5. Government Transformation
6. Governance
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